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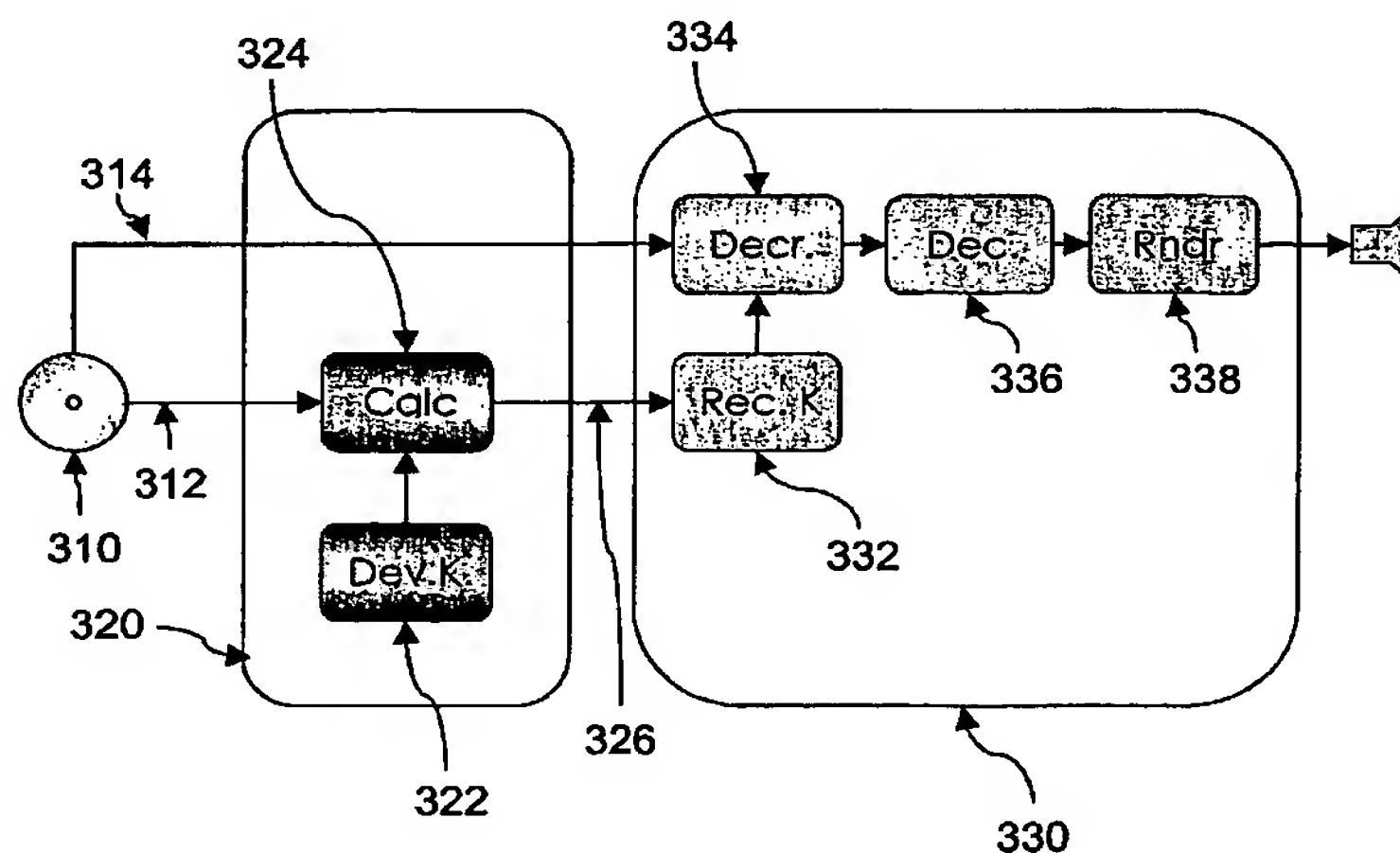
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(54) Title: BLOCK CIPHERING SYSTEM, USING PERMUTATIONS TO HIDE THE CORE CIPHERING FUNCTION OF EACH ENCRYPTION ROUND



(57) Abstract: In a system (600), a server (610) provides a digital signal processing function  $f$  to an executing device (620) in an obfuscated form. The function  $f$  includes a function cascade of signal processing functions  $f_i$ ,  $1 \leq i \leq N$  to formula (I). The server includes a processor (612) for selecting a set of  $2N$  invertible permutations  $p_i$ ,  $1 \leq i \leq 2N$ ; calculating a set of  $N$  functions  $g_i$ , where  $g_i$  is functionally equivalent to formula (II) for  $1 \leq i \leq N$ ; and calculating a set of  $N-1$  functions  $h_i$ , where  $h_i$  is functionally equivalent to formula (III) for  $2 \leq i \leq N$ . The server includes means (614) for equipping the executing device with an execution device function cascade that includes formula (IV), where  $y_1, \dots, y_N$  are function parameters to formula (V), and means (616) for providing the functions  $g_1, \dots, g_N$  to the executing device. The executing device includes means (626) for obtaining the functions  $g_1, \dots, g_N$  and a processor (622) for loading the execution device function cascade and applying the loaded execution device function cascade to the functions  $g_1, \dots, g_N$  (e.g.,  $ED(g_1, \dots, g_N)$ ).

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